

Claims

1. An electric power steering apparatus, which controls a motor that gives a steering assisting force to a steering mechanism based on an electric current controlling value which is computed from a steering assisting command value which has been computed by a computing device based on a steering torque generated in a steering shaft and an electric current value of the motor, being characterized by comprising a self-aligning torque estimating section which estimates a self-aligning torque by a disturbance observer constitution and a steering torque feedback section which performs definition of a steering reaction force based on a self-aligning torque estimated value which has been estimated by the self-aligning torque estimating section and feeds the steering reaction force back to the steering torque.

2. The electric power steering apparatus as set forth in Claim 1, wherein definition of static characteristics of the steering torque feedback section is determined based on the steering reaction force and the self-aligning torque estimated value.

3. The electric power steering apparatus as set forth in Claim 1, wherein the definition of dynamic characteristics of the steering reaction force of the steering torque feedback section is performed such that a gain of a transfer function

in a frequency band of information which is desirous to be conveyed to a driver is allowed to be large, while the gain of the transfer function in the frequency band of information which is not desirous to be conveyed to the driver is allowed to be small.

4. The electric power steering apparatus as set forth in Claim 1, wherein a characteristic of a controller into which a deviation between the steering torque and an output from the steering torque feedback section is inputted is allowed to be a proportional factor in a low range and a cutoff factor in a high range, without containing an integral factor.

5. The electric power steering apparatus as set forth in Claim 1, wherein the self-aligning torque estimating section is allowed to estimate the self-aligning torque from a motor rotation signal or angular speed signal and a motor electric current command value.